

How Much Longer?

Reporting Category Measurement

Topic Determining elapsed time

Materials

- Elapsed Time Tools handout (attached)
- How Much Longer? Game (attached)
- How Much Longer? Time Cards (attached)
- Analog clock(s)
- Tag board
- Sheet protectors
- Dry erase markers, board, wipes
- Index cards
- Thumb tacks
- Stopwatch

Vocabulary

elapsed time, hour, minute, a.m., p.m., 12-hour period, o'clock

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Present the following word problem to the class: "You are at the movies. The movie you are watching started at 3:45 p.m. You look at your watch when it ends: the time is now 5:27 p.m. How long was the movie?" Have students work in pairs to solve this problem. Make timelines and clocks available for students to use. Also, copy the Elapsed Time Tools sheet on tag board and put copies in sheet protectors to use with dry erase markers, if students wish to use them.
2. Have various pairs of students compare their answers and share their strategies for finding them. Discuss with students the tools that would be helpful in completing this task. Ask whether any students used the Elapsed Time Tools handout to solve the problem, and if they did, have them demonstrate how they used it. If none used it, model how to use it to find elapsed time.
3. Have students work in groups of four to solve elapsed time problems. Each group must model how to find the elapsed time, using a timeline and clocks. Students should feel free to use the Elapsed Time Tools and the dry erase boards to show other methods they would like to share.
4. Have each group share the problem and how elapsed time was determined. Ask students whether one method of solving was easier than another. Do not encourage addition or subtraction of times due on the fact that it will often involve regrouping hours and minutes.

5. Once groups have shared their methods of solving the problem, have student pairs play the “How Much Longer? Game” (see attachment).

Assessment

- **Questions**
 - What are two different strategies you can use for determining elapsed time?
 - How is elapsed time relevant to everyday life, and how will it be helpful to you?
 - What does a “12-hour-period” mean, and what are some examples of a 12-hour-period?
 - Can a 12-hour-period include a.m. and p.m. times? Why, or why not?
 - Is there more than one way to determine elapsed time? Is there more than one way to solve this problem?
- **Journal/Writing Prompts**
 - Show your solution to the following problem: “Your mom called and said she would be home in an hour and 45 minutes. If it is now 2:20 p.m., what time will she get home?”
 - Show your solution to the following problem: “It takes you 2 hours and 25 minutes to get to your cousin’s house. If you need to be there for a birthday party that starts at 2:30 p.m., what time should you leave to get there on time?”
- **Other**
 - Have students show how they used more than one method to determine elapsed time.
 - Have students write their own elapsed time problems and exchange problems with other students to solve. Have them check for accuracy.

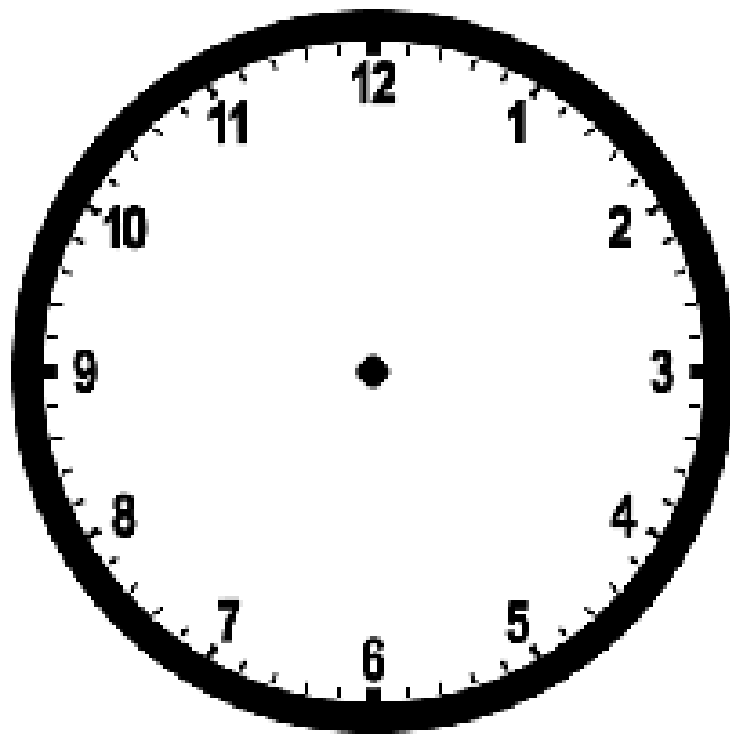
Extensions and Connections (for all students)

- Pass out index cards showing the times of various events that occur during the day. Use your daily schedule to start with, and expand it with other happenings, if necessary. Post the daily schedule on a bulletin board. When the time of a listed event arrives, the student with the card showing that time will go to the board and tack the card below the event. Then, the student must determine how much time will elapse until the next scheduled event that is listed. Keep dry erase boards close by for students to determine how much time will elapse.
- Have students play “I have, Who has?” with elapsed time cards.
- Have students look up the starting times for movies at local theatres and determine what time various movies will end, given the starting times and the lengths of the films.

Strategies for Differentiation

- Add additional time cards, as needed.
- Enlarge attached time cards, as needed.
- Have students label each number with appropriate five-minute intervals.
- Create and post a vertical or horizontal timeline, using register tape.

Elapsed Time Tools


















How Much Longer? Game

Work with your partner. Choose a card from the deck of time cards. Record the starting time and ending time in the chart below. Determine how many hours pass between the two times. Now, record the extra minutes that remain and that will get you to the ending time. Finally, record the elapsed time on the chart. Remember to use a clock, timeline, or your own strategy to determine the elapsed time.

[illegible]

How Much Longer? Time Cards

<p>Starting Time 10:18 a.m.</p>  <p>Ending Time 7:28 p.m.</p>	<p>Starting Time 12:13 a.m.</p>  <p>Ending Time 4:14 a.m.</p>	<p>Starting Time 10:08 a.m.</p>  <p>Ending Time 2:15 p.m.</p>	<p>Starting Time 11:45 a.m.</p>  <p>Ending Time 6:32 p.m.</p>
<p>Starting Time 1:37 p.m.</p>  <p>Ending Time 5:34 p.m.</p>	<p>Starting Time 4:28 a.m.</p>  <p>Ending Time 10:18 a.m.</p>	<p>Starting Time 2:13 a.m.</p>  <p>Ending Time 9:14 p.m.</p>	<p>Starting Time 1:08 p.m.</p>  <p>Ending Time 11:15 p.m.</p>
<p>Starting Time 8:45 a.m.</p>  <p>Ending Time 6:32 p.m.</p>	<p>Starting Time 5:34 a.m.</p>  <p>Ending Time 1:37 p.m.</p>	<p>Starting Time 3:30 a.m.</p>  <p>Ending Time 7:00 a.m.</p>	<p>Starting Time 3:15 p.m.</p>  <p>Ending Time 9:00 p.m.</p>
<p>Starting Time 9:00 a.m.</p>  <p>Ending Time 2:30 p.m.</p>	<p>Starting Time 5:45 p.m.</p>  <p>Ending Time 7:55 p.m.</p>	<p>Starting Time 6:13 p.m.</p>  <p>Ending Time 7:28 p.m.</p>	<p>Starting Time 10:18 p.m.</p>  <p>Ending Time 6:28 a.m.</p>